

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**



A68064-1.ST25.txt

RECEIVED

OCT 04 2001

TECH CENTER 1600/2900

SEQUENCE LISTING

<110> Dahiyat, Bassil I.
Morton, Andrew G.

<120> NOVEL PROTEINS WITH INSULIN-LIKE ACTIVITY USEFUL IN THE TREATMENT OF DIABETES

<130> A-68064-1/RFT/RMS/RMK

<140> US 09/574,443

<141> 2000-05-19

<150> US 60/134,930

<151> 1999-05-19

<160> 23

<170> PatentIn version 3.1

<210> 1

<211> 110

<212> PRT

<213> Homo sapiens

<300>

<308> P01308

<309> 1986-07-21

<313> (1)..(110)

<400> 1

Met Ala Leu Trp Met Arg Leu Leu Pro Leu Leu Ala Leu Leu Ala Leu
1 5 10 15

Trp Gly Pro Asp Pro Ala Ala Ala Phe Val Asn Gly His Leu Cys Gly
20 25 30

Ser His Leu Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe
35 40 45

Phe Tyr Thr Pro Lys Thr Arg Arg Glu Ala Glu Asp Leu Gln Val Gly
50 55 60

Gln Val Glu Leu Gly Gly Gly Pro Gly Ala Gly Ser Leu Gln Pro Leu
65 70 75 80

Ala Leu Glu Gly Ser Leu Gly Lys Arg Gly Ile Val Glu Gln Cys Cys
85 90 95

Thr Ser Ile Cys Ser Leu Tyr Gln Leu Glu Asn Tyr Cys Asn
100 105 110

<210> 2
 <211> 51
 <212> PRT
 <213> Homo sapiens

<300>
 <308> 229122
 <309> 1992-07-10
 <313> (1)..(51)

<400> 2

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
 1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln His Leu Cys Gly Ser His Leu
 20 25 30

Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
 35 40 45

Pro Lys Thr
 50

<210> 3
 <211> 21
 <212> PRT
 <213> Homo sapiens

<300>
 <301> Ciszak, E. and Smith, G.D.
 <302> Crystallographic evidence for dual coordination around zinc in the T3R3 h
 uman insulin hexamer
 <303> Biochemistry
 <304> 33
 <305> 6
 <306> 1512-1517
 <307> 1994-02-15
 <308> 494680
 <309> 1993-11-19
 <313> (1)..(21)

<400> 3

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
 1 5 10 15

Glu Asn Tyr Cys Asn
 20

<210> 4
 <211> 30
 <212> PRT
 <213> Homo sapiens

<300>
 <301> Ciszak, E. and Smith, G.D.
 <302> Crystallographic evidence for dual coordination around zinc in the T3R3 h
 uman insulin hexamer
 <303> Biochemistry
 <304> 33
 <305> 6
 <306> 1512-1517
 <307> 1994-02-15
 <308> 494681
 <309> 1993-11-19
 <313> (1)..(30)
 <400> 4

Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
 1 5 10 15

Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr
 20 25 30

<210> 5
 <211> 21
 <212> PRT
 <213> Homo sapiens

<300>
 <301> Ciszak, E. and Smith, G.D.
 <302> Crystallographic evidence for dual coordination around zinc in the T3R3 h
 uman insulin hexamer
 <303> Biochemistry
 <304> 33
 <305> 6
 <306> 1512-1517
 <307> 1994-02-15
 <308> 494682
 <309> 1993-11-19
 <313> (1)..(21)

<400> 5

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
 1 5 10 15

Glu Asn Tyr Cys Asn
 20

<210> 6
 <211> 30

<212> PRT
 <213> Homo sapiens

<300>
 <301> Ciszak, E. and Smith, G.D.
 <302> Crystallographic evidence for dual coordination around zinc in the T3R3 human insulin hexamer
 <303> Biochemistry
 <304> 33
 <305> 6
 <306> 1512-1517
 <307> 1994-02-15
 <308> 494683
 <309> 1993-11-19
 <313> (1)..(30)
 <400> 6

Phe Val Asn Gln His Leu Cys Gly Ser His Leu Val Glu Ala Leu Tyr
 1 5 10 15

Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr
 20 25 30

<210> 7
 <211> 51
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 7

Asn Leu Val Glu Gln Ala Ser Thr Ser Gln Ala Ser Leu Tyr Gln Ile
 1 5 10 15

Tyr Asn Phe Asp Asn Asp Val Asn Phe His Leu Tyr Gly Ser His Ile
 20 25 30

Arg Glu Trp Leu Tyr Leu Val Ala Gly Glu Arg Gly Phe Asn Phe Asp
 35 40 45

Pro Lys Thr
 50

<210> 8
 <211> 51
 <212> PRT
 <213> Artificial Sequence

<220>

<223> synthetic

<400> 8

Gly Ile Val Glu Gln Cys Ser Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Cys Asn Phe Glu Asn Tyr His Leu Tyr Gly Ser His Leu
20 25 30

Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
35 40 45

Pro Lys Thr
50

<210> 9

<211> 51

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 9

Gly Ile Val Glu Gln Cys Ser Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln His Leu Asp Gly Ser His Leu
20 25 30

Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
35 40 45

Pro Lys Thr
50

<210> 10

<211> 51

<212> PRT

<213> Artificial Sequence

<220>

<223> synthetic

<400> 10

Gly Ile Val Glu Gln Cys Ser Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Cys Asn Phe Thr Asn Tyr His Leu Tyr Gly Ser His Leu
20 25 30

Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
35 40 45

Pro Lys Thr
50

<210> 11
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 11

Gly Ile Val Glu Gln Cys Ser Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Tyr His Leu Tyr Gly Ser His Leu
20 25 30

Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
35 40 45

Pro Lys Thr
50

<210> 12
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 12

Gly Ile Val Glu Gln Cys Ser Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln His Leu Glu Gly Ser His Leu
20 25 30

Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
 35 40 45

Pro Lys Thr
 50

<210> 13
 <211> 47
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 13

Gly Ile Val Glu Gln Cys Glu Thr Ser Ile Cys Ser Leu Tyr Gln Leu
 1 5 10 15

Glu Asn Tyr Cys Asn His Leu Glu Gly Ser His Leu Val Glu Ala Leu
 20 25 30

Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr Pro Lys Thr
 35 40 45

<210> 14
 <211> 51
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 14

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
 1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln Phe Leu Cys Gly Ser His Leu
 20 25 30

Val Glu Phe Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
 35 40 45

Pro Lys Thr
 50

<210> 15
 <211> 51

<212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 15

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
 1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln Phe Leu Cys Gly Ser His Leu
 20 25 30

Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
 35 40 45

Pro Lys Thr
 50

<210> 16
 <211> 51
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 16

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
 1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln His Leu Cys Gly Ser His Leu
 20 25 30

Val Glu Phe Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
 35 40 45

Pro Lys Thr
 50

<210> 17
 <211> 51
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 17

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln His Leu Cys Gly Ser His Leu
20 25 30

Val Glu Trp Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
35 40 45

Pro Lys Thr
50

<210> 18
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 18

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln Phe Leu Cys Gly Ser His Leu
20 25 30

Val Glu Trp Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
35 40 45

Pro Lys Thr
50

<210> 19
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 19

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln His Leu Cys Gly Ser His Leu
 20 25 30

Val Glu Tyr Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
 35 40 45

Pro Lys Thr
 50

<210> 20
 <211> 51
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 20

Gly Ile Val Glu Gln Cys Cys Thr Ser Ile Cys Ser Leu Tyr Gln Leu
 1 5 10 15

Glu Asn Tyr Cys Asn Phe Val Asn Gln His Leu Cys Gly Ser His Leu
 20 25 30

Val Glu Ile Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Phe Tyr Thr
 35 40 45

Pro Lys Thr
 50

<210> 21
 <211> 51
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> synthetic

<400> 21

Asn Ile Val Glu Gln Cys Cys Thr Ser Gln Cys Ser Leu Tyr Gln Tyr
 1 5 10 15

Glu Asn Tyr Cys Asn Asp Val Asn Gln His Leu Cys Gly Ser His Leu
 20 25 30

Val Glu Ala Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Asn Tyr Asp
 35 40 45

Pro Lys Thr
50

<210> 22
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 22

Asn Ile Val Glu Gln Cys Cys Thr Ser Gln Cys Ser Leu Tyr Gln Tyr
1 5 10 15

Tyr Asn Phe Cys Asn Asp Lys Asn Phe His Leu Cys Gly Ser His Ile
20 25 30

Arg Glu Trp Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Asn Phe Asp
35 40 45

Pro Lys Thr
50

<210> 23
<211> 51
<212> PRT
<213> Artificial Sequence

<220>
<223> synthetic

<400> 23

Asn Ile Val Glu Gln Cys Cys Thr Ser Gln Cys Ser Leu Tyr Gln Tyr
1 5 10 15

Tyr Asn Phe Cys Asn Asp Lys Asn Phe His Leu Cys Gly Ser His Ile
20 25 30

Arg Glu Trp Leu Tyr Leu Val Cys Gly Glu Arg Gly Phe Asn Phe Asp
35 40 45

Pro Lys Thr
50